

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	LTR	DESCRIPTION	DATE	APPROVED
100-00000000	100-00000000	A	CORRECT SCHEMATIC ERRORS	2/8/78	Justus
		B	ADD MATERIAL LIST	2/10/78	Justus

Schwartz

From G. Justice
MJS 359

XEOS
Pasadena

2/16/78

XEROX

Material List

ML	Drawing No. 596P61520	Rev. B
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Rev.	Drawing Title ALTO II SERIAL COMMUNICATION CONTROL	Model No.	Date 2/9/78	Sheet 3 of 14	
Drawing No.	Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
ML	1	BOARD, GENERAL PURPOSE, WIRE-WRAP	596P61506A	1	
	2	MICROCIRCUIT 8T98N		15	A1, A9, A12, B1, C1, C2, C4, C9, C12, E1, E12, F1, F9, G1, G12
	3	74LS75N		2	A5, B5
	4	7485N		1	A6
	5	74LS02N		3	A8, B9, C6
	6	74LS174N		1	A10
	7	7438N		1	A11
	8	1489PC		3	A13, B13, G13
	9	74LS138N		2	B6, F10
	10	S2350P		1	B7
	11	74LS00N		5	B8, B11, F8, G9, G11
	12	7493AN		1	B10
	13	8T97N		10	B12, C3, C5, C8, E2, E3, E5, F5, F12, G5
	14	74LS30N		1	C6
	15	F4702PC		1	C10
	16	74221N		2	C11, A8
	17	1488PC		3	C13, E13, F13
	18	74LS175N		4	D2, D4, E10, G10
	19	7404N		1	D5
	20	74LS10N		2	E4, F11
	21	7425N		1	E9
	22	CD4011BE		1	E11
	23	7474N		3	F6, G6, G8
	24	MICROCIRCUIT S1883P		1	F7
	25	RESISTOR PAK, MONOLITHIC 316B272		6	A2, A4, B4, F4, G2, G4
	26	RESISTOR PAK, MONOLITHIC 316B242		6	A3, B2, B3, F2, F3, G3

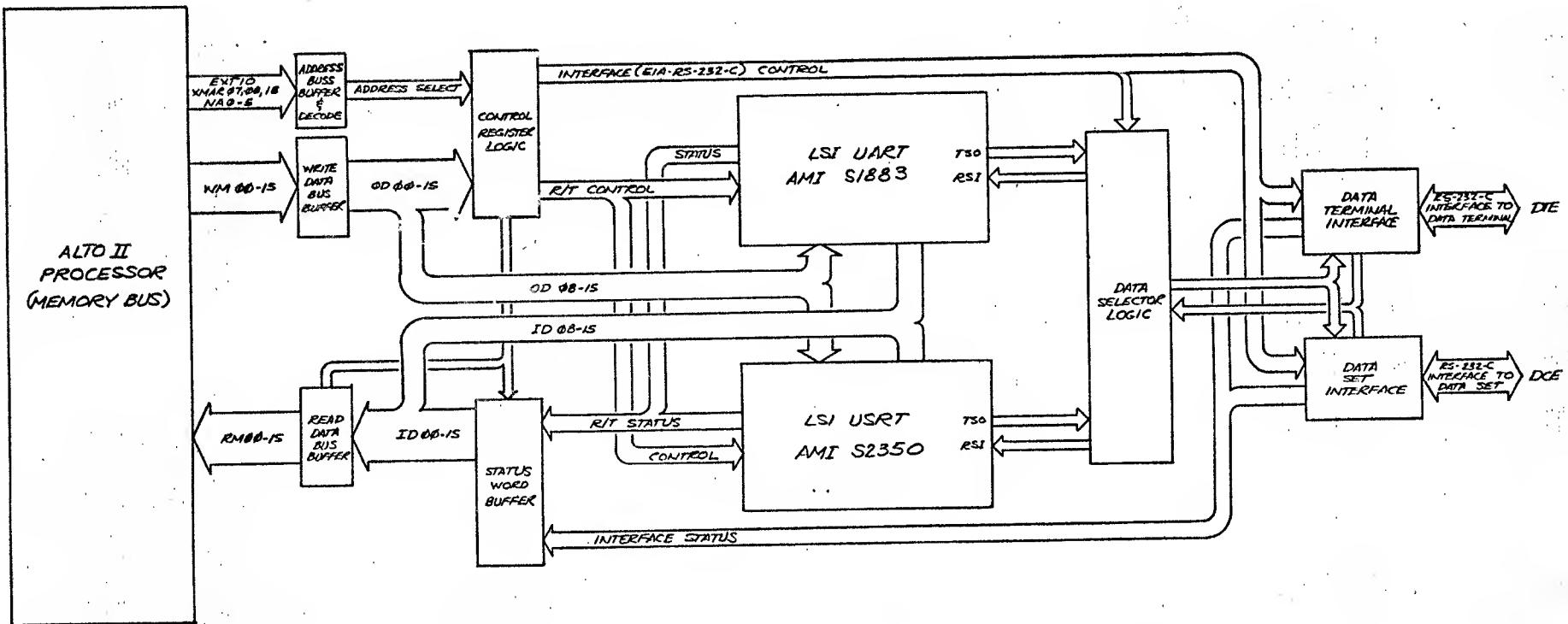
Material List

Rev.

Drawing No.

W

Revisions			Description			Chk	Date	Approved
LAL	Rev.							



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Notes Unless Specified	Draw: <i>John</i> 8/3/77
1. Tolerances .000 .003 .010	Check <i>B725</i> 8/3/77
2. Break All Sharp Edg. .010 Approx.	Appr. <i>John</i> 8-1-77
3. Mach. Surfaces ✓	Material
4. All Ult. In Inches	
5. All True Position Tolerances Apply at MMC	
Model No. First Use	Finish
Next Assy. First Use	
Code Ident. 12705	Size Dwg. No. 596P61520
Scale	Do Not Scale Drawing
	Sheet 5 OF 14

Dist Code

ELECTRO-OPTICAL SYSTEMS
511 NORTH HAMILTON STREET, PASADENA, CALIFORNIA 91107

XEROX

ALTO II SERIAL COMMUNICATION CONTROL B-1K DIAGRAM

Change Letter N/C

CONTROL WORD FORMATS

• MNEMONIC INITIF - INITIALIZE INTERFACE CIRCUITS

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	0	0	0	0	LINE	DS	HD	S	STD	X	BAUD RATE				

LINE - ADDRESSES CONTROL WORD TO SELECTED LINE CONTROL; UP TO 8 FULLY PROGRAMMABLE, FULL DUPLEX LINE CONTROLS MAY BE ACCOMMODATED IN ONE ALTO II PROCESSOR.

DS - WHEN SET, SELECTED CONTROL WILL COMMUNICATE WITH A DATA SET; DEFAULT TO DATA TERMINAL.

HD - WHEN SET, SELECTED CONTROL WILL OPERATE HALF-DUPLEX; DEFAULT TO FULL-DUPLEX.

S - INDICATES ALTO SENDING WHEN SET(1) IN HALF-DUPLEX.

STD - SETS SECONDARY REQ. TO SEND (2SCA) TO 0 OR 1 WHEN SET AND INTERFACE IS TO DATA SET, SETS SECONDARY CARR. DET. TO 0 OR 1 WHEN SET AND INTERFACE IS TO DATA TERM.

BAUD RATE - SELECTS BAUD RATE AT WHICH LINE WILL OPERATE.

812	813	814	815	812	813	814	815	812	813	814	815				
0	0	1	0	0	-50 BAUD	0	1	0	0	-3400 BAUD	1	0	0	-3400 BAUD	
0	0	1	1	1	-75 BAUD	1	0	0	0	-9600 BAUD	1	0	1	-300 BAUD	
0	1	0	0	0	-194.5 BAUD	1	0	0	0	-4800 BAUD	1	1	0	-150 BAUD	
0	1	0	1	0	-200 BAUD	1	0	1	0	-11800 BAUD	1	1	1	-110 BAUD	
0	1	1	0	0	-600 BAUD	1	1	0	0	-1200 BAUD					

• MNEMONIC INITRT - INITIALIZE RECEIVER/TRANSMITTER

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	0	0	1	LINE	NDB	NPA	SPN	NPB	X	X	X				

NDB - SELECTS NO. OF DATA BITS PER CHARACTER

87	88	DATA BITS
0	0	5
0	1	6
1	0	7
1	1	8

NPB - NO PARITY BIT WHEN SET

A/S - SELECTS ASYNCHRONOUS (UART) OPERATION WHEN SET OR SYNCHRONOUS (USRT) WHEN NOT SET.

POE - SELECTS EVEN PARITY WHEN SET, ODD PARITY WHEN NOT SET.

NSB - SELECTS NO. OF STOP BITS PER CHARACTER WHEN ASYNC OPERATION IS SELECTED; SELECTS 1 STOP BIT WHEN SET; 2 STOP BITS WHEN NOT SET (EXCEPTION: SELECTS 1.5 STOP BITS WHEN NOT SET AND 5 DATA BITS ARE SELECTED).

• MNEMONIC INITRG - INITIALIZE REGISTERS

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	0	1	0	LINE	F/S	DATA FIELD									

F/S - WHEN SET CAUSES DATA FIELD TO BE LOADED INTO USRT TRANSMITTER FILL CHARACTER REGISTER; WHEN NOT SET DATA FIELD WILL BE LOADED INTO USRT RECEIVER SYNC CHARACTER REGISTER.

• MNEMONIC RESET - GENERATE CONTROLLER RESETS

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	0	1	1	LINE	D	RRT	RR	X	X	X	X	X	X	X	X

D - GENERATES A LINE DISCONNECT/MASTER CLEAR OF THE SELECTED LINE WHEN SET.

RRT - CLEARS THE RECEIVER/TRANSMITTER (UART/USRT) WHEN SET.

RR - RESETS SYNCHRONOUS RECEIVER, CLEARS STATUS REGISTER, RESTARTS SYNCHRONOUS RECEIVER IN THE BIT TRANSPARENT MODE FOR SYNC SEARCH.

• MNEMONIC SWI - FORCE THE SELECTED CONTROL TO REQUEST AN INTERRUPT

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	1	0	0	LINE	X	X	X	X	X	X	X	X	X	X	X

• MNEMONIC INTA - INTERRUPT ACKNOWLEDGE TO THE SELECTED LINE.

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
1	1	0	1	LINE	X	X	X	X	X	X	X	X	X	X	X

STATUS WORD FORMAT

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
D	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

• INTERFACE STATUS (HIGH ORDER BYTE)

D - DISCONNECT FLAG: WHEN SET THIS BIT INDICATES LOSS OF RS-232 LINE; DATA SET RDY IF DATA SET INTERFACE IS SELECTED, DATA TERM. RDY IF DATA TERM INTERFACE IS SELECTED.

CD - CARRIER DETECT FLAG.

RI - RING INDICATOR FLAG.

SI - SEND INDICATOR FLAG: WHEN BIT IS SET, INDICATES PRESENCE OF CLEAR TO SEND IF DATA SET INTERFACE IS SELECTED; REQUEST TO SEND IF DATA TERMINAL INTERFACE IS SELECTED.

SRD - REMOTE HALF-DUPLEX BREAK: IN HALF DUPLEX THIS BIT GOING TO A ZERO SIGNALS A BREAK BY THE REMOTE RECEIVING STATION.

• RECEIVER/TRANSMITTER STATUS (LOW ORDER BYTE)

RDA - RECEIVE DATA AVAILABLE.

TBMT - TRANSMIT BUFFER EMPTY.

SCR - SYNC CHARACTER RECEIVED (USRT).

FCT - FILL CHARACTER TRANSMITTED (USRT).

RPE - RECEIVE PARITY ERROR

ROR - RECEIVE OVERFLOW ERROR

RFE - RECEIVE FRAMING ERROR (UART)

• INTERRUPT FLAG (B15)

INTP - $INTP = D + CD + RI + SI + RDA + TBMT + SCR + (SRD \cdot SEND \cdot HDUP)$

DATA WORD FORMAT (RECEIVE OR TRANSMIT)

80	81	82	83	84	85	86	87	88	89	810	811	812	813	814	815
0	X	X	X	LINE	X										

DATA FIELD

backwards (See BCPL stream package)

To set fill and sync char registers

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TOLERANCES UNLESS OTHERWISE SPECIFIED
DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

DR. 1/1/88
CHK. 11
M.E. APPD. 1/1
E.E. APPD. 2/16/88
APPD. 11
SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED

XEROX CORPORATION
NAME ALTO II SERIAL COMM.
CONTROL - SCHEMATIC DIAGRAM
DWG A 55GP61520
SIZE SH 6 OF 14
REV. B

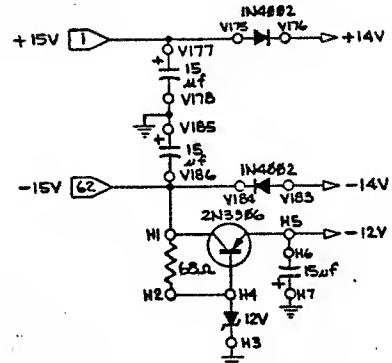
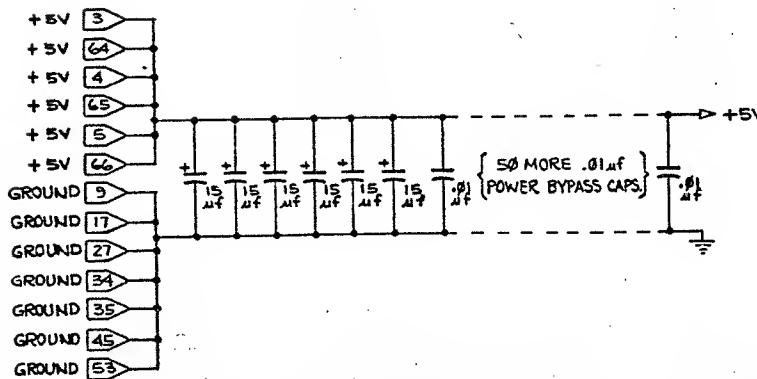
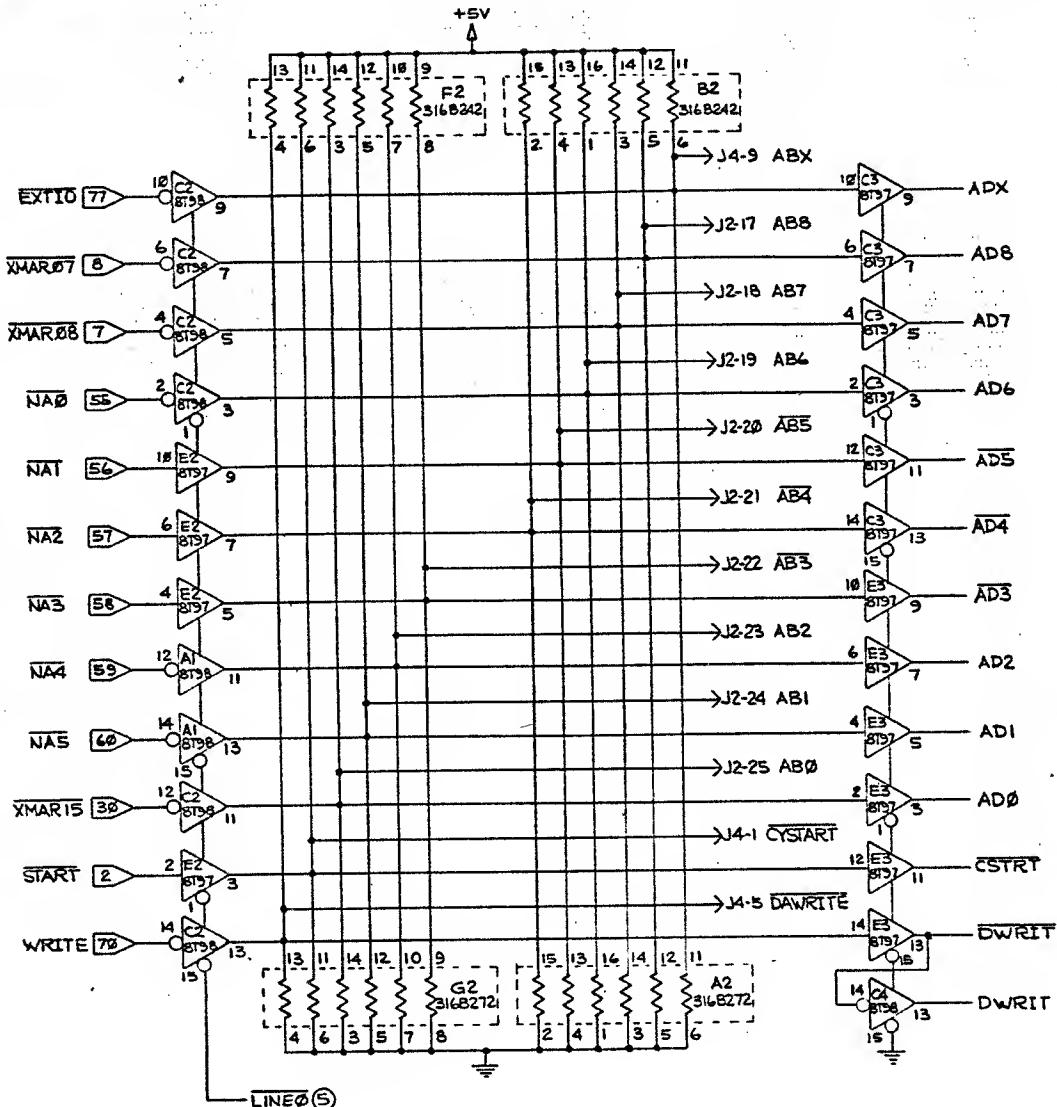
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D

C

B

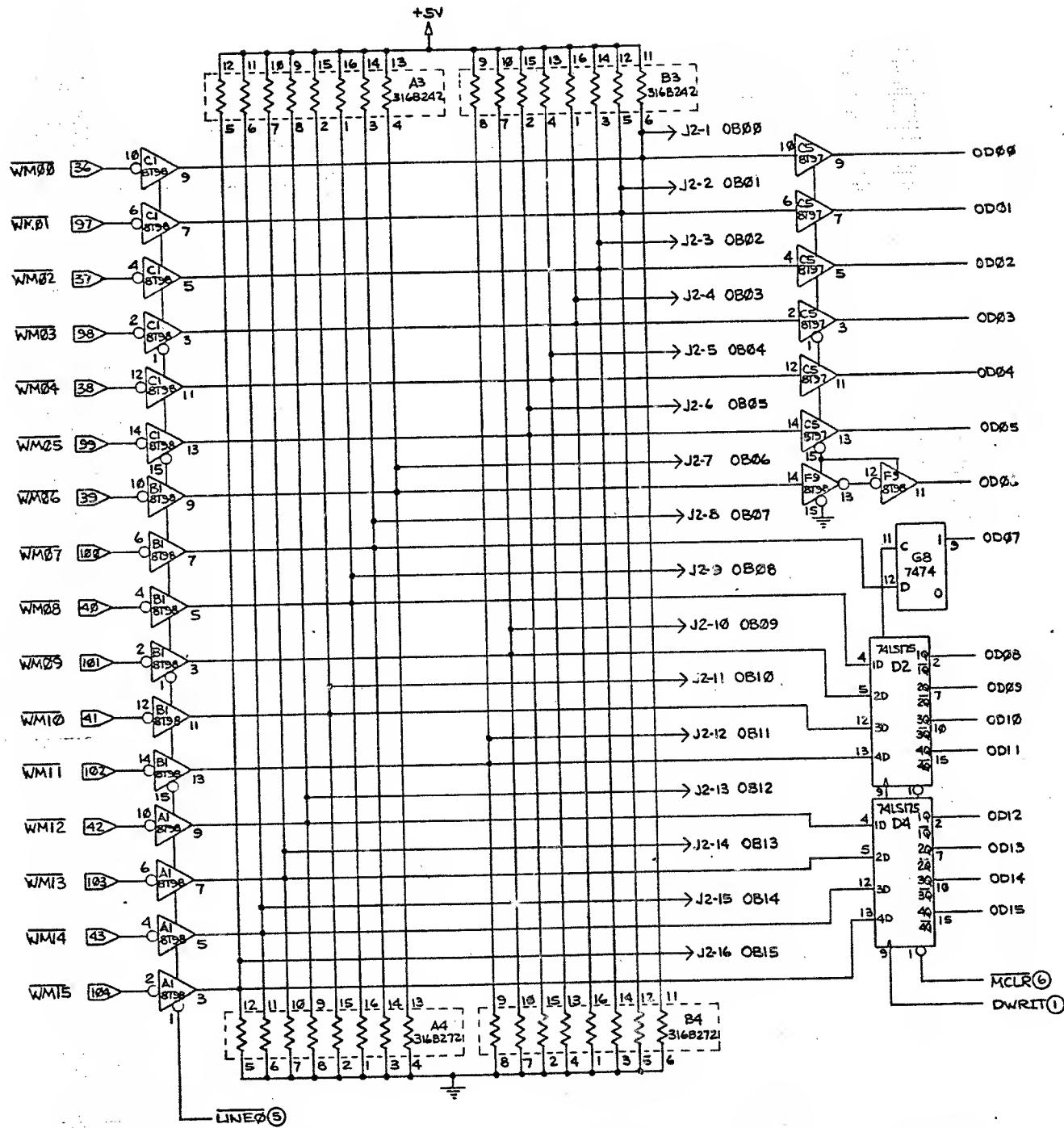
A



NOTES: 1. CIRCLED N° (5) APPENDED TO SIGNAL NAMES INDICATE SHEET N° WHEREON SIGNAL ORIGINATES.
 2. SYMBOL **12** INDICATES J1 CARDEdge CONNECTOR PIN CONNECTION TO MOTHERBOARD BACKPLANE.
 3. UNLESS OTHERWISE INDICATED, +5V TO PIN 14 FOR 14-PIN DIP AND PIN 16 FOR 16-PIN DIP, AND GROUND TO PIN 7 FOR 14-PIN DIP AND PIN 8 FOR 16-PIN DIP I.C.S.

MEMORY ADDRESS & CONTROL BUS BUFFER LOGIC

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			ANGLES	M.E. APPD.	E.E. APPD.		
	FINISH-XEROX SPEC NO.	DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES			APPD. <i>[Signature]</i> 2/16/78	SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED	DWG. 596P61520 REV. B A SIZE SH 7 OF 14
		DO NOT SCALE DRAWING					
E	D	C	B				A



MEMORY WRITE BUS BUFFER LOGIC

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			CHK.	ANGLES		
		FINISH-XEROX SPEC NO.			E.E. APPD.	
				DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES	APPD.	NAME ALTO II SERIAL COMM.
		DO NOT SCALE DRAWING		SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED	✓	CONTROL-SCHEMATIC DIAGRAM
A	B	596P61520	REV. B	SIZE SH 8 OF 14		

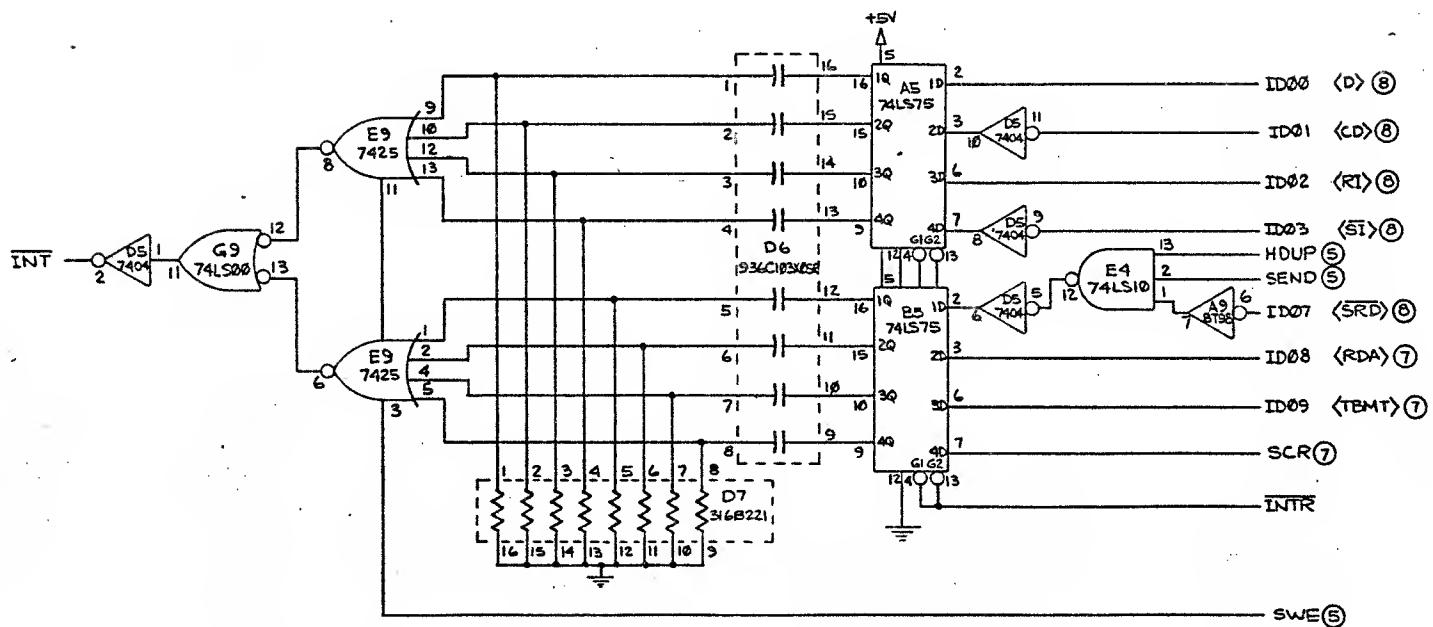
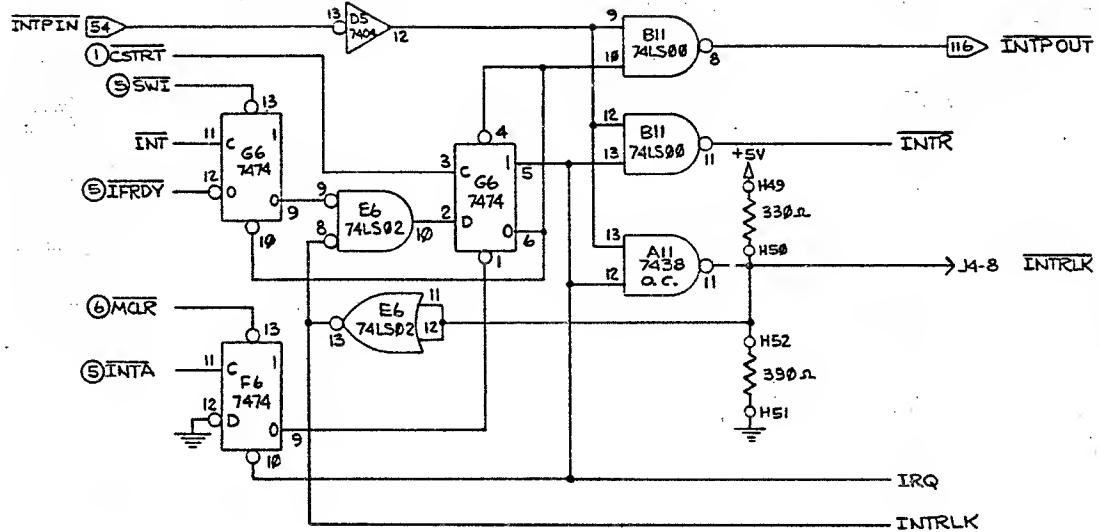
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A



INTERRUPT LOGIC

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			FINISH-XEROX SPEC NO.	ANGLES	M.E. APPD. //	E.E. APPD. 2/17/78	NAME ALTO II SERIAL COMM. CONTROL-SCHMATIC DIAGRAM
				DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES	APPD. //	APPD. //	DWG A 596P61520 REV B SIZE SH 10 OF 14
			DO NOT SCALE DRAWING	SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED	✓		

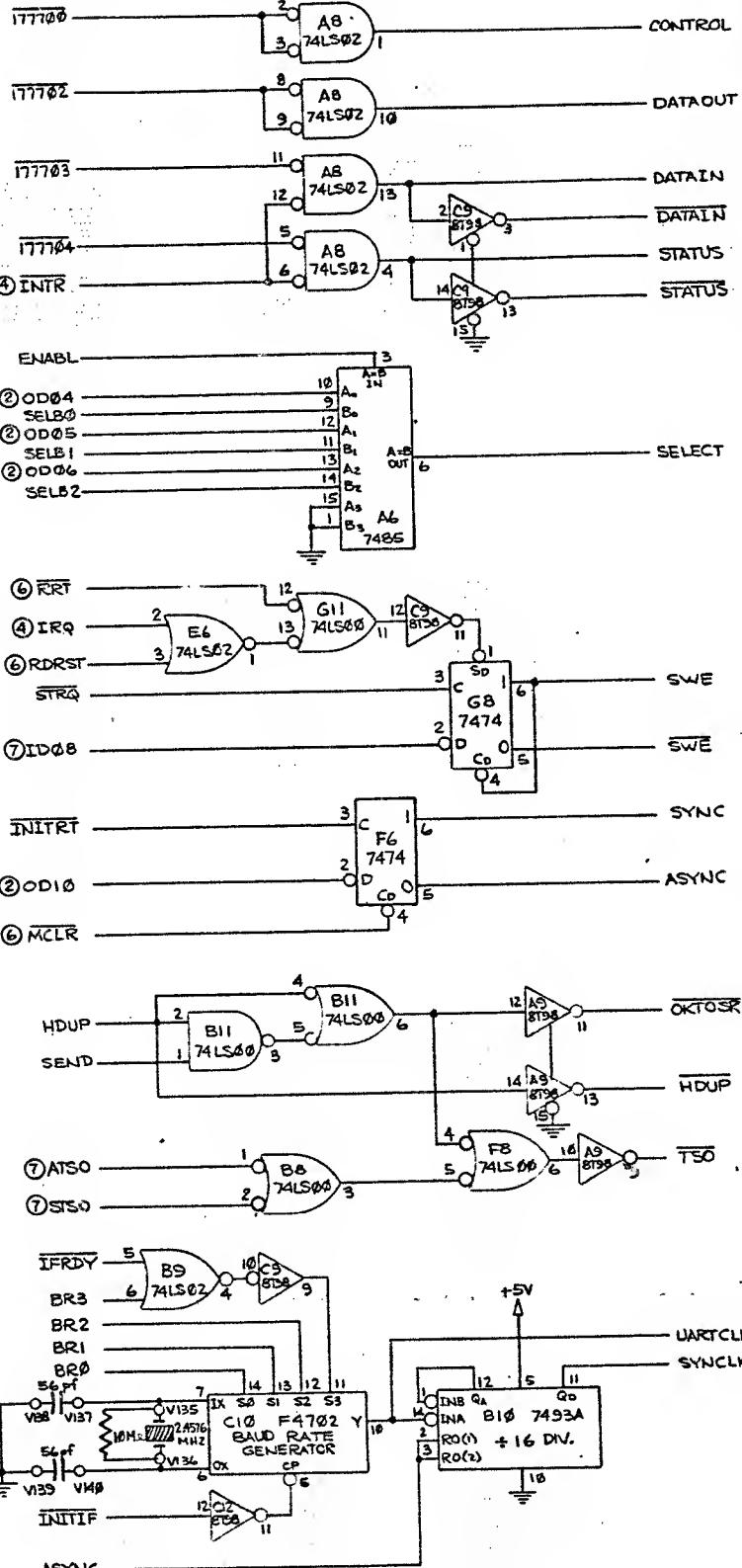
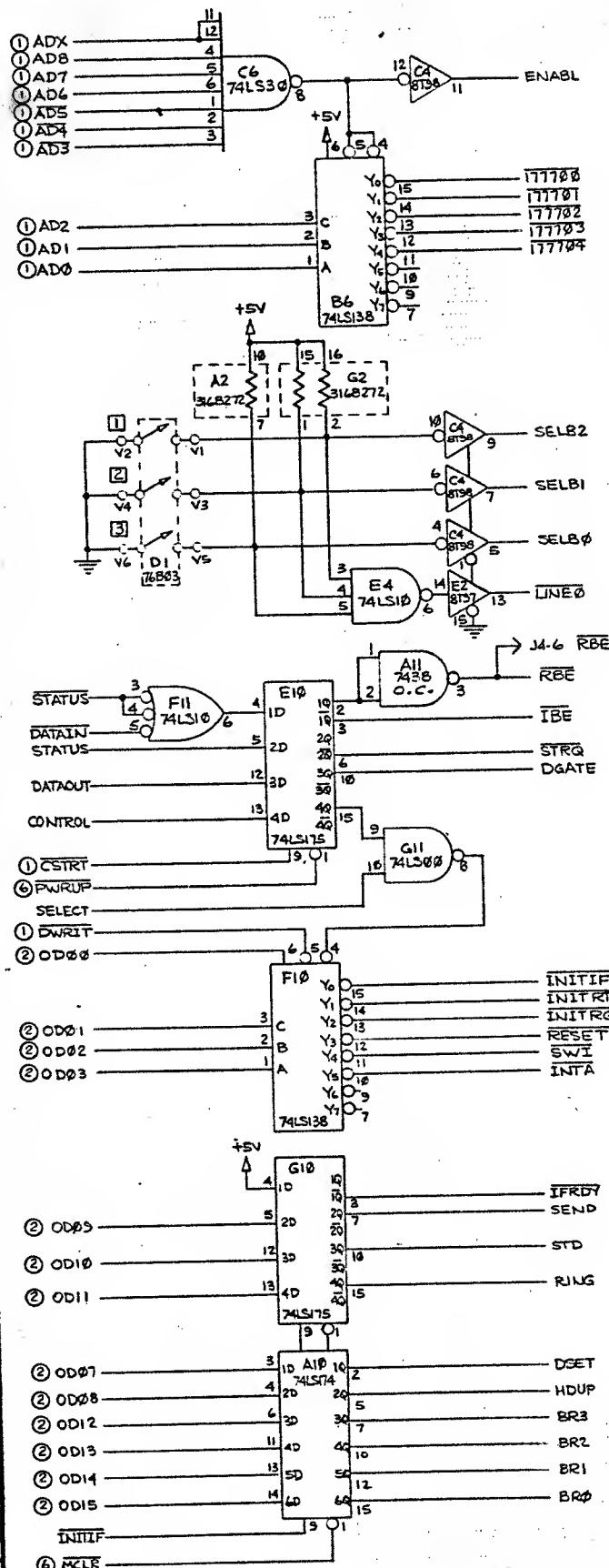
E

D

C↑

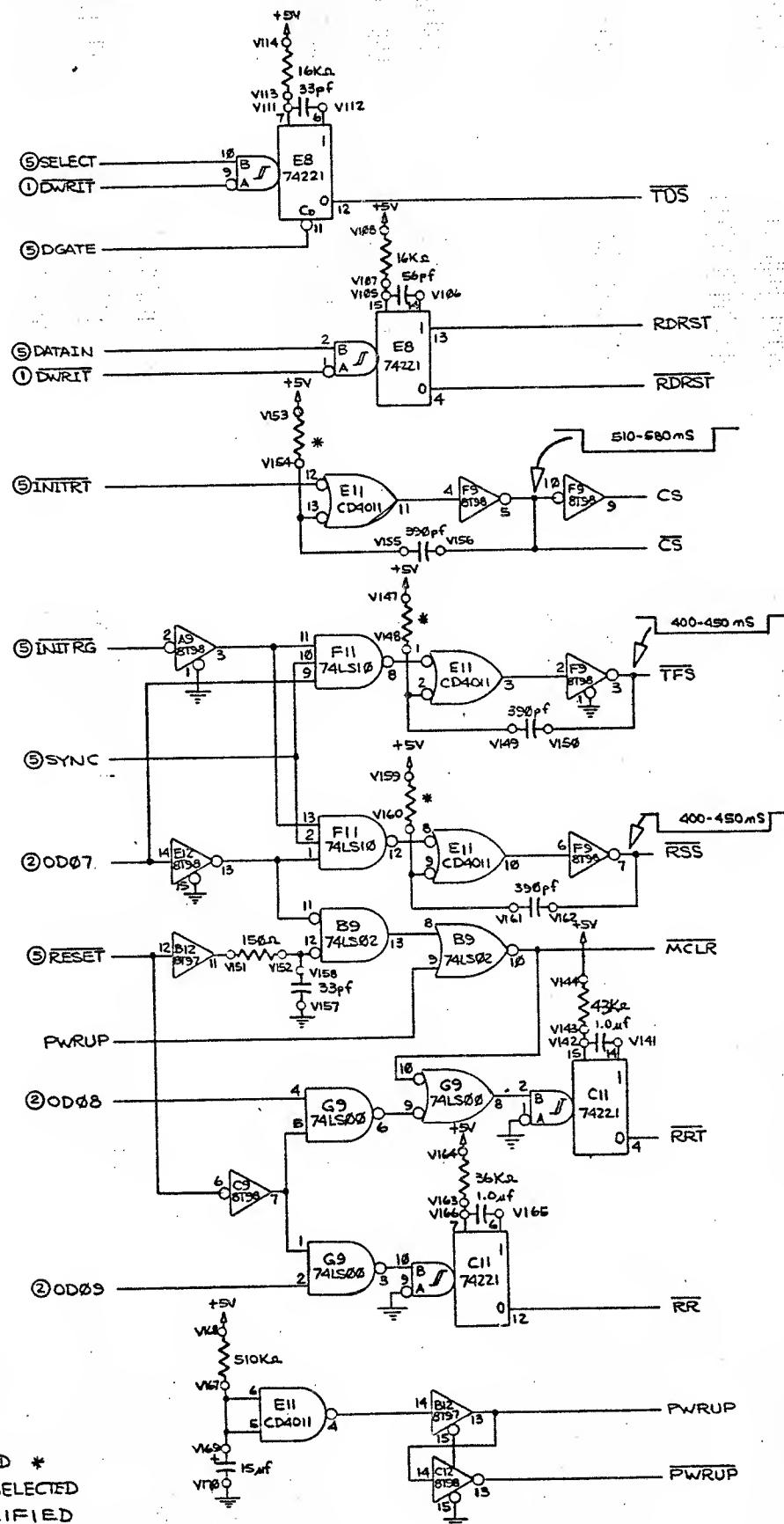
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A



ADDRESS DECODING AND CONTROL LOGIC

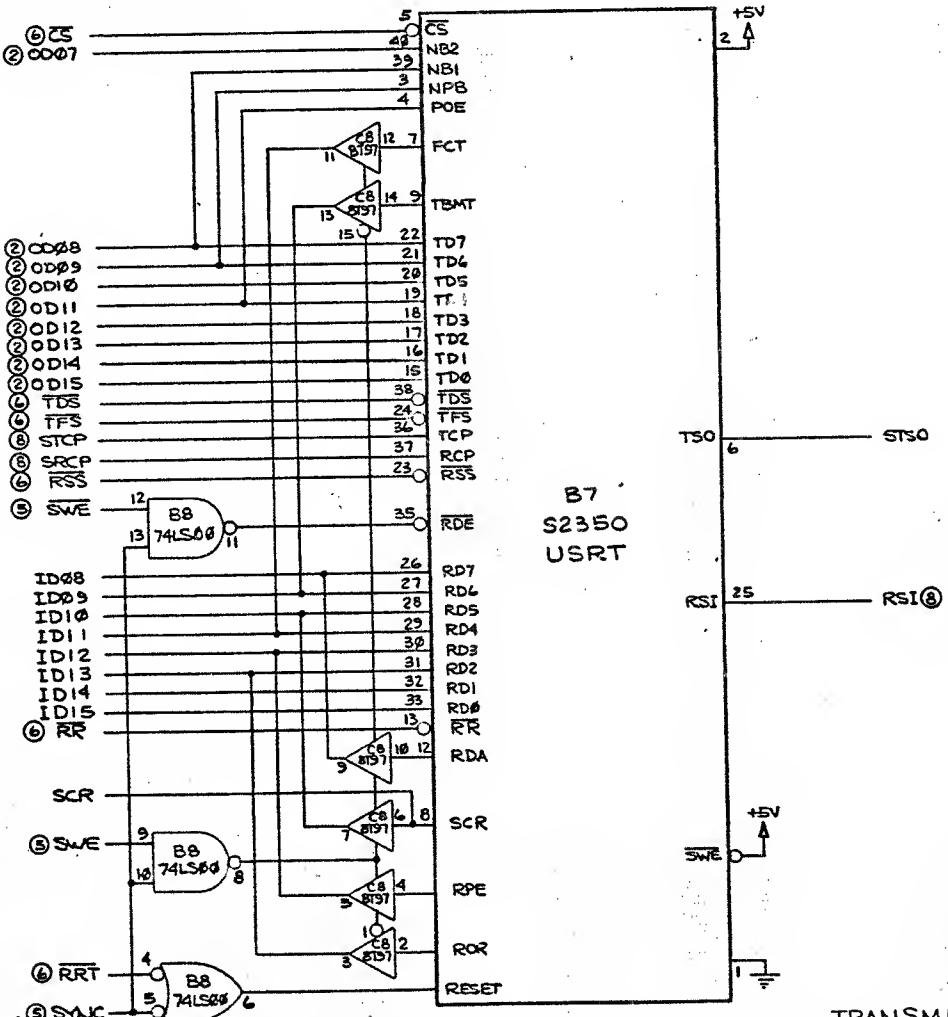
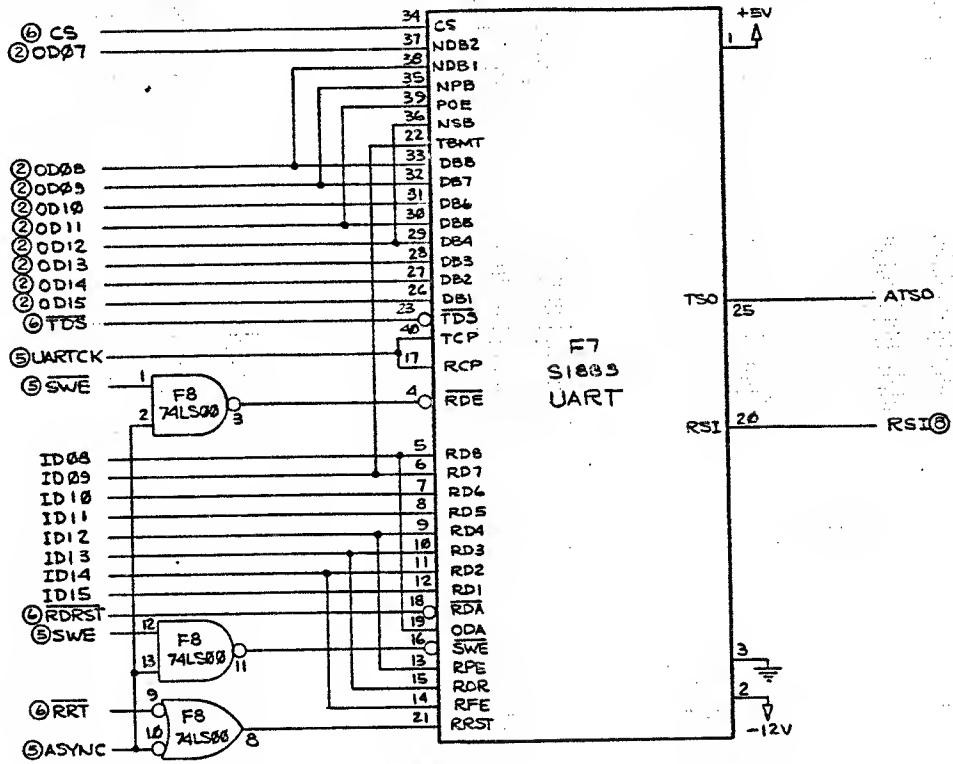
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								CHK. / /		NAME ALTO II SERIAL COMM.	
								M.E. APPD. / /		CONTROL-SCHMATIC DIAGRAM	
								E.E. APPD. 2-16/16			
								APPD. / /			
						DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES		SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED		✓	
						DO NOT SCALE DRAWING					



NOTE: COMPONENTS MARKED *
ARE INDIVIDUALLY SELECTED
TO PRODUCE SPECIFIED
PULSE WIDTHS.

POWER UP, RESET & STROBE GENERATOR LOGIC

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			ANGLES		M.E. APPD. //		
					E.E. APPD. <i>2.16 lbs</i>		
					APPD. //		
FINISH-XEROX SPEC NO.		DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES		SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED		DWG <i>A</i> 596P61520 REV. <i>B</i> SIZE SH 12 OF 14	
DO NOT SCALE DRAWING							



TRANSMIT-RECEIVE LOGIC

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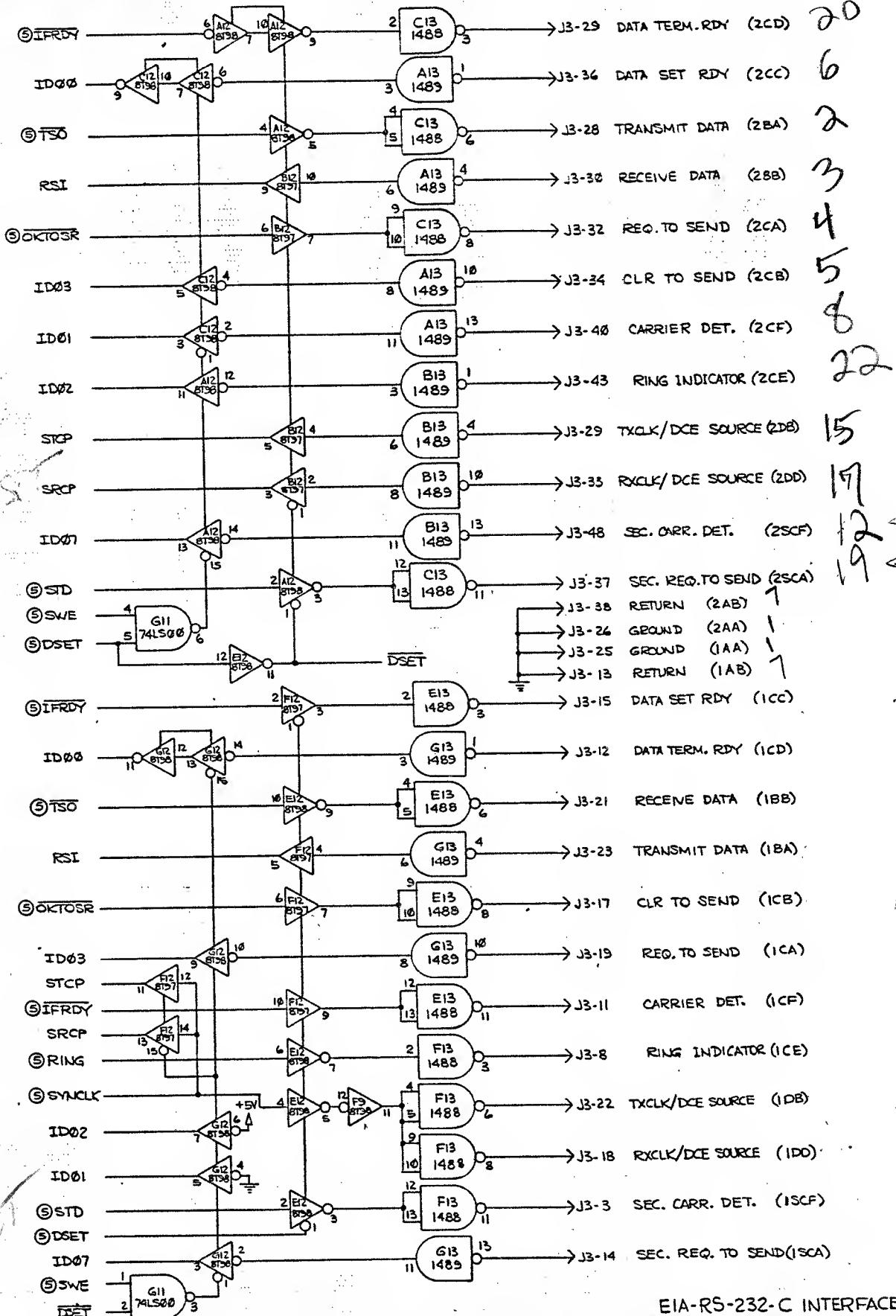
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MATERIAL-XEROX SPEC NO.
FINISH-XEROX SPEC NO.
DO NOT SCALE DRAWING

TOLERANCES UNLESS OTHERWISE SPECIFIED
DEVIATIONS FRDM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES

DR. *[Signature]* 1/17/88
CHK. //
E.E. APPD. 2/16/88
APPD. //
SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED

XEROX CORPORATION
NAME ALTO II SERIAL COMM.
CONTROL-SCHMATIC DIAGRAM
DWG 596P61520 REV. B
SIZE A SH 13 OF 14



EIA-RS-232-C INTERFACE LOGIC

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					ANGLES	M.E. APPD.	11		
				FINISH-XEROX SPEC NO.	DEVIATIONS FROM INTENDED SHAPE (FLATNESS, ROUNDNESS, SQUARENESS, ETC.) MUST BE WITHIN STATED DIMENSIONAL TOLERANCES		E.E. APPD. 316/8	NAME ALTO II SERIAL COMM. CONTROL-SCHEMATIC DIAGRAM	
					DO NOT SCALE DRAWING	SURFACE QUALITY ON MACHINED SURFACES UNLESS OTHERWISE SPECIFIED		APPD. 11	DWG 596P61520
							✓	SIZE SH 14 OF 14	